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INCINERATORS: SELECTED PROVISIONS INCORPORATED IN AIR POLLUTION ORDINANCES

Public Health Service
Washington, D. C.

July 1961

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Public Health Service

Division of Air Pollution

Washington 25, D. C.

INCINERATORS

Selected Provisions incorporated in Air Pollution Ordinances

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Springfield VA 22151

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NOTE

The selected provisions relating to Incinerators which appear in this document are not intended to be all-inclusive, but only to present sample sections.

For those interested in the complete details, including exceptions, it is recommended that they secure and review the appropriate Ordinance in full.

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I N C I N E R A T O R S

SELECTED PROVISIONS INCORPORATED IN AIR POLLUTION ORDINANCES

July - 1961

CHICAGO

Classes of Fuel-Burning, Combustion and Process Equipment Established.

17-22: Class I: Open fires, excepting the open fires caused by the burning of debris resulting from the construction, alteration, demolition or wrecking of any building, structure or equipment as provided in Section 17-31, diesel motor vehicles, and all fuel-burning, combustion or process equipment or devices which produce steam, hot water, or warm air for use primarily in any domestic heating plant or in any heating plant other than domestic, or incinerators, constructed and installed, or reconstructed at a cost in excess of 50% of the total replacement cost of the equipment or devices involved, subsequent to the effective date of this chapter, but excluding any such equipment for which an installation permit was issued prior to such date.

Smoke

17-23: Subject to the provisions of Sections 17-25 and 17-26 hereof, it shall be unlawful within the City of Chicago for any person owning or in charge of any fuel-burning, combustion or process equipment or device, or portable boiler, or open fire, to cause, suffer or allow the emission or discharge of smoke from any single such source into the atmosphere except in conformity with the limits set forth in the following table:

SMOKE EMISSION MAXIMA

	Smoke R No.	Class I Minutes Per 60 Minutes
Normal Operation	4,5	0
	3	0
	2	8
	1	60
Units per 60 Minutes		60
Building new, banking and cleaning fires, soot blowing, and process purging	4,5	0
	3	4
	2	8
	1	60
Units per 60 Minutes		72

Emission of Particulate Matter

17-24: Subject to the provisions of Sections 17-25 and 17-26, it shall be unlawful within the City of Chicago for any person owning or in charge of any fuel-burning, combustion or process equipment or device, or any portable boiler, to cause, suffer or allow the emission from any such source of any particulate matter except in conformity with the limits set forth as follows:

(1) The basic limitation on the average emission into the atmosphere of particulate matter from any single such source of emission shall be 0.35 grains per cubic foot of gas measured at a temperature of 60 degrees Fahrenheit and a pressure of 30 inches of mercury, under steady conditions, provided that for emissions at levels 100 feet or more above

grade, the basic limitation shall be increased by the amount of particulate matter of less than 10 microns in size, if any, up to a maximum increase of 0.03 $(H/100)^2$ grains per scf, where H is the height of discharge in feet above grade.

Nuisance: Abatement.

17-27: Any emission of smoke, particulate matter or other matter from any single such source in excess of the limitations established in or pursuant to Sections 17-23, 17-24, 17-25 and 17-26 shall be deemed and is hereby declared to be a public nuisance, and may be summarily abated by the Director. Such abatement may be in addition to the administrative proceedings, fines and penalties herein provided.

Refuse-Burning Equipment -- Sale Of.

17-46: It shall be unlawful for any person to sell, offer for sale, expose for sale, exchange, deliver or install for the use in the City of Chicago:

(1) Any make, model, or type of domestic refuse-burning equipment which has not been approved by the Director; or

(2) Any make, model, or type of approved domestic refuse-burning equipment for the burning of any type of refuse other than the types for which the refuse-burning equipment has been approved by the Director. The delivery or transportation of any refuse-burning equipment by railroad companies and other common carriers in the course of their common carrier business shall not be deemed to be a violation of the provisions of this section.

Refuse-Burning Equipment -- Types of, Plates or Tags for; Tests of. 17-47: Prior to approval, plans of each make, model, or type of domestic refuse-burning equipment shall be submitted to the Department and such equipment be subjected to such tests as may be deemed necessary to establish its air pollution potential. For this purpose the Director may rely, in whole or in part, upon tests of such equipment previously conducted by nationally recognized associations.

(1) The Director shall list each make, model, or type of domestic refuse-burning equipment which he has approved, and shall designate the approval as being limited to one of the following two categories:

> "Type A. Domestic burning equipment for ordinary paper or similar material only;"
>
> "Type B. Domestic incinerators for burning rubbish and garbage."

(2) Any approved domestic refuse-burning equipment that is sold, offered for sale, exchanged, delivered or installed for use in the City of Chicago shall bear a plate or tag in accordance with the regulations of the Department which identifies the equipment and the category for which it is approved.

(3) Any person, firm, or corporation whose domestic refuse-burning equipment is submitted for tests by the Department must pay all reasonable expenses necessary to the attendant tests, and the Department shall furnish the submitter a copy of the results of such tests.

Installation Permit Required for Fuel-Burning, Combustion and Process Equipment and for High Pressure Boiler Furnace Repair.

17-48: It shall be unlawful for any person to install, erect, construct, reconstruct, alter, or add to, or cause to be installed, erected, constructed, reconstructed, altered, or added to, any fuel-burning, combustion or process equipment or device, or any equipment pertaining thereto, or any stack or chimney connected therewith, within the City excepting domestic heating plants, domestic refuse-burning equipment, locomotives, steamships and internal combustion engines, or to make, or cause to be made, major repairs to any high pressure boiler furnace or the brickwork on or about the same in said City, until an application for installation and operating permits on forms supplied by the Department including suitable plans and specifications of the fuel-burning, combustion or process equipment or device, or high pressure boiler furnace repair, and the structures or buildings used in connection therewith, has been filed in duplicate by the owner, contractor, installer, or other person, or his agent, in the office of, and has been approved by, the Director as being so designed that the same can be managed and operated to conform to the provisions of this chapter, and an installation permit issued by him for such installation, erection, construction, reconstruction, alteration, addition to, or repair.

Certificate of Operation for New Fuel-Burning, Combustion or Process Equipment or Devices.

17-55: Upon completion of any work for which an installation permit was

issued, the Department shall be notified by the person or persons responsible therefor, and, if upon inspection it is found that such work is in conformity with the plans and specifications, the Director shall issue a certificate of operation forthwith.

ST. LOUIS

Section 13: Emission of Dense Smoke Prohibited. -- The emission or escape of dense smoke into the open air within the city, or within one-half mile of the boundaries thereof pursuant to Section 71.780 Revised Statutes of Missouri, 1949, from any furnace or other combustion device for the burning of fuel or refuse, or from any building or premises, or from any chimney used in connection with any of the foregoing, or from any open fire, or, for a period exceeding one continuous minute from any locomotive in or ready for service, is prohibited, and is hereby declared to be a nuisance, and may be summarily abated by the commissioner or by anyone duly authorized by him for that purpose. Except that smoke of a density of No. 2 as defined by the Ringelmann Chart for a period or periods aggregating not to exceed nine minutes in any one hour, or smoke of a density in excess of No. 2 as defined by the Ringelmann Chart for a period or periods aggregating not to exceed six minutes in any one hour, may be emitted at a time when the firebox is being cleaned or a new fire being built therein.

Section 15: When Emission of Pollutants to Become Nuisance. -- The emission or escape into the open air within the city, or within one-half mile of the boundaries thereof, pursuant to Section 71.780 Revised Statutes of Missouri, 1949, from any source or sources whatsoever, of smoke, ashes, dust, soot, cinders, dirt, grime, acids, fumes, gases, vapors, odors or any other substances or elements, in such manner or in

such amounts as shall be detrimental to or endanger the health, comfort, safety or welfare of or cause severe annoyance or discomfort to, or is offensive and objectionable to the public, or shall cause injury or damage to property or interfere with the normal conduct of business, is hereby declared to be and shall constitute a public nuisance. It shall be unlawful for any person to cause, permit or maintain any such public nuisance, notwithstanding the provisions of Sections 13 and 14 of this Ordinance.

Section 20: Dealers in Refuse or Fuel-Burning Devices to Report Sales: Duty of Purchaser to Give Seller Address, Etc. -- (a) It shall be the duty of all persons engaged in the business of selling fuel-burning or refuse-burning devices to report to the commissioner the sale of every such article to be installed or used anywhere within the city. It shall be the duty of every person purchasing any of such articles, at the time of making such purchase, to give to the seller a statement in writing signed by such purchaser or his duly authorized agent setting forth the correct address of the building in which such articles are to be installed and used.

Section 18: Permits to be Obtained for Installation of Fuel or Refuse-Burning Equipment: Other Equipment. -- (a) No new fuel-burning plants, or reconstruction, alteration or replacement of any existing fuel-burning plants, nor any refuse-burning equipment, nor any chimney, nor any device or contrivance connected with such fuel-burning or refuse-burning equipment for the purpose of preventing, reducing or controlling the emission of pollutants to the air, shall be installed, erected, reconstructed,

altered or replaced in the city until plans and specifications of the same have been filed by the owner, contractor, installer or other person in the office of and approved by the commissioner of air pollution control as being so designed that it can be managed and operated to conform to the provisions of this ordinance, and a permit has been issued by the commissioner for such installation, erection, reconstruction, alteration, or replacement...

(b) The commissioner shall not approve plans or issue permits for the installation of any fuel-burning device of the surface-burning type unless the fuel to be used in such device is shown to be a smokeless solid fuel as defined in Section II of this ordinance, or a mechanical fuel-burning device is used.

(c) Any equipment covered by paragraph (a) of this section which is installed, erected, reconstructed, altered or replaced without the filing of plans and specifications, and the obtaining of a permit as provided in that paragraph, may be sealed immediately by the commissioner, the seal to remain in effect until the provisions of paragraph (a) of this section have been complied with.

(d) Nothing in this section shall be construed to prohibit the emergency reconstruction, alteration or replacement of equipment covered by this section when the necessity of such action arises outside of the business hours of the division of air pollution control; provided that the owner, contractor or other person permitting or making such emergency reconstruction, alteration or replacement shall apply for a permit for such

work on the first business day after the work is commenced.

Section 19: Labels to be Affixed to Approved Installations. -- When the commissioner is assured that work done under a permit issued as provided in the preceding section is in conformity with the plans and specifications submitted and approved and with the rules and reulations of the division, and is so constructed that, in his opinion, it can be operated without the emission of dense smoke, fly ash or other pollutants in violation of the provisions of this chapter, he shall cause to be affixed thereto a label of inspection.

PHILADELPHIA

Section 4A - Limits and Measurements -- (a) No person may cause, suffer or allow to be discharged into the open air dust, fume, gas, mist, odor, smoke, vapor, or any combination thereof, from any single point, vent, stack or source which constitutes air pollution or an air pollution nuisance or which is of a shade in excess of No. 2 on the Ringelmann chart or its equivalent for a period of more than two (2) minutes in any fifteen (15) minutes: or for more than three such two (2) minute periods in any one day; --- ...

(b) Dust, fume or smoke discharged into the open air, or passing any convenient measuring point, from any fuel fired combustion process, shall not: (1) exceed 0.85 pounds per 1,000 pounds of gases adjusted to 12 percent CO_2 (carbon dioxide) content; or (2) create air pollution or an air pollution nuisance at any time or place.

Paragraph 3-201 - General Prohibitions (1) No person shall emit, or cause or allow the emission or escape into the open air from any structure, machine, facility, plant, premises or ground, including parking lots, of dust, fume, gas, mist, odor, smoke, vapor or any combination thereof, of a quantity or character which constitutes or which in conjunction with the conduct of other persons creates air pollution or an air pollution nuisance, or violates any regulation of the Air Pollution Control Board.

Paragraph 3-301 - Installation Permits (1) No person shall construct, reconstruct, convert, add to, alter, or replace, except for minor repairs,

any installation, equipment, or device, or appurtenances thereto, that produce, control, cause or may cause air pollution or an air pollution nuisance, unless he has obtained a permit from the Department of Licenses and Inspections and has paid the fee prescribed by Paragraph 3-305.

(2) Any person applying for such permit shall submit to the Department of Licenses and Inspections plans and specifications of the work to be done insofar as air pollution or an air pollution nuisance may be concerned and such other information as the Department requires.

Section 3A - Permits

(i) The design and dimensions of industrial, commercial, three family or more incinerators, or crematories, and their associated vents or stacks, insofar as air pollution is concerned, shall be submitted to the Air Pollution Control Section for their approval, modification or disapproval within a reasonable time.

Section 5A - Other Requirements

(d) Incinerators -

(d-1) The Air Pollution Control Section may require that an existing incinerator or crematory be equipped with an apparatus capable of furnishing auxiliary heat, or other approved means, to prevent air pollution or an air pollution nuisance from the incinerator after evidence of a violation of the Ordinance. All new incinerators or crematories shall be equipped with adequate auxiliary heat sources or other approved means

to prevent air pollution or an air pollution nuisance.

(d-2) Incinerators without auxiliary heat or other approved means to prevent air pollution or an air pollution nuisance at or in multiple dwellings may not be operated except between the hours of 7:00 a.m. to 5:00 p.m. Further restrictions as to operating hours may be invoked on specific incinerators if they are in repeated violation.

(d-3) The Air Pollution Control Section may require that each industrial, commercial, three family or more incinerator be equipped with a suitable screen or other approved means over any outlets. The Section may also require periodic inspection reports from the owners or operators on such screens or other means as to their condition at suitable intervals.

(d-4) Approved means may be required on incinerator stacks to regulate exit gas velocities.

(d-5) Incinerators may not be vented into other stacks without special approval of the Air Pollution Control Section. Adequate provision for clean-out boxes must be furnished.

ALLEGHENY COUNTY

1309. Miscellaneous Pollutants from Combustion:

.3 Incinerators of All Types:

(b) Smoke emitted into the atmosphere from any incinerator shall be of an appearance, density, or shade lighter than No. 1 of the Ringelmann Chart.

1309. .3 (c) No person shall cause, suffer, or allow to be emitted into the atmosphere from any incinerator or pass a convenient measuring point near the stack outlet, fly ash in the gases to exceed 0.20 lb. per 1,000 lb. of gases.

1312. Nuisances:

.1 No person shall cause, suffer, or allow such air pollutants as are set forth in Section 1302.1 to escape to the open air in such amounts as to be a nuisance to any person or the public.

.2 The Director shall determine, by appropriate measurements, when emission of air pollutants is causing a nuisance, and he shall notify the person causing or allowing a nuisance in the manner provided for by Section 1313.

1310. Permits and Fees:

.2 No person shall construct, install, alter, or operate any incinerator, or any fuel-burning equipment rated at 200,000 B.T.U./hr. or more, or any equipment pertaining thereto for use within the County of Allegheny until he or his authorized repre-

sentative shall have filed, in duplicate, an application for Installation and Operating Permits on forms supplied by the Bureau, together with plans and specifications of the fuel-burning equipment, stack, structure, buildings, or portions of buildings used functionally therewith, and such other data and information as may be requested by the Bureau... If upon inspection it is found that the construction, installation, or alteration is in conformity with the application, plans, and specifications, the Director shall issue an Operating Permit forthwith. No inspections or Operating Permits shall be required in the case of domestic heating plants as defined in Section 1302.16.

.6 Plans and specifications submitted as part of an application shall conform to the following requirements:

(a) Plans shall be of professional quality and clearly show, in adequate detail, the proposed arrangement, location, and size of all fuel-burning equipment, including fresh air supply ducts, piping, valves, breeching, stacks, and chimneys, and shall show plan and elevation cross-sections of the fuel-burning equipment and construction details thereof.

(d) Plans and specifications are not required for domestic installations.

1309. Miscellaneous Pollutants from Combustion:

.3 Incinerators of All Types:

(a) Incinerators shall completely consume not less than

95 percent of all combustible material charged into them, except that domestic gas-fired incinerators shall meet the standards given in the American Standards Association publication Z-21.6-1957, or latest revision thereof.

N. Y. STATE (proposed)

IV. Emission Guides and Degree of Air Cleaning for Specific Operations

A. Visible Smoke Emissions

The maximum visible emission to the outer air from any fuel-burning equipment shall not exceed a shade density or appearance darker than No. 2 on the Ringelmann Smoke chart or equivalent standard except during the cleaning of a fire-box, the building of a new fire, or other temporary operating difficulties, smoke having a shade density exceeding No. 3 of the Ringelmann smoke chart, or equivalent standard, may be emitted for a period or periods aggregating not more than 4 minutes in any 60 consecutive minutes.

B. Incinerator Design Guides

These guides shall apply to the design of all new or modifications to existing incinerators.

All components, dimensions, and auxiliary equipment shall be such as to provide for the proper combustion of refuse and treatment of the products of combustion so that concentrations of contaminants emitted to the outer air will not exceed applicable state or local limitations on the maximum allowable amounts of contaminants.

The combustion chamber, or chambers, and flues shall be of sufficient size to handle the refuse at the rate at which it will be delivered for burning and to contain the expanded combustion air and volatiles and detain them for sufficient time with sufficient turbulence to satisfy completeness of combustion, as indicated by emission guides.

Provision shall be made for admittance of the proper amount and proportion of underfire and overfire air, and secondary air when used, so that combustion will take place within the required temperature range. Equipment shall be provided to prevent excessive draft under any normal operating procedures.

Auxiliary fuel-burning equipment shall be included in the design, as necessary, to adequately dry the incoming refuse and to support complete combustion. A pilot or spark igniter and an approved automatic device, to furnish protection in case the auxiliary flame is accidentally extinguished shall be provided.

Excessive emission of particulates to the outer air shall be prevented by draft control, settling chambers, scrubbers, or other suitable equipment, or by any combination of them.

Stack height and throat area shall be consistent with topography and local obstructions, so that emissions do not create a hazard or nuisance to surrounding property. A spark arrester may be required, depending on location, surroundings, nature of the refuse, and type of incinerator.

Operating and Emission Guides -- Incinerators

The following guides shall apply to the design of new and modified incinerators:

Temperature in primary combustion chamber during operation	
Recommended range	1600°-2000°F
Minimum at outlet from final combustion chamber	1400°F
Stack emissions -- maximum per ton of refuse burned	
Particulates -- new installations	2 lbs/ton
Particulates -- modifications to existing single chamber	5 lbs/ton
Smoke -- (See smoke guides)	
No odor producing substnaces in quantities that are normally detectable or objectionable.	

Rule 2. Reports, Plans, and Specifications

2-2. Submission of Reports and/or Plans and Specifications

2-2.1 Application for Approval

Because approval will be based on performance, applications for approval shall be filed with the Board accompanied by an expected performance report and/or plans and specifications in duplicate. Application forms furnished by the Board shall be signed by the applicant or his authorized agent. Plans and specifications shall bear the seal of a licensed professional engineer.

2-3.5 Final Approval

After the completion of the construction for which an application and a report and/or plans and speci-

fications were approved, and after said installation has been tested as provided in Rule 3, the person making such installation shall receive from the Board a certificate of final approval. Such approval shall continue in effect so long as the installation performs in accordance with the conditions upon which the approval is based.

LOS ANGELES COUNTY

REGULATION IV. PROHIBITIONS

RULE 50. RINGELMANN CHART. A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is:

a. As dark or darker in shade as that designated as No. 2 on the Ringelmann Chart, as published by the United States Bureau of Mines, or

b. Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection (a) of this Rule.

RULE 51. NUISANCE. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.

RULE 53. (Amended 1-16-58) SPECIFIC CONTAMINANTS. A person shall not discharge into the atmosphere from any single source of emission whatsoever any one or more of the following contaminants, in any state or combination thereof, exceeding in concentration at the point of discharge:

a. Sulphur Compounds calculated as sulphur dioxide (SO_2): 0.2 per cent, by volume.

b. (Amended 1-16-58) Combustion Contaminants: 0.3 grain per cubic foot of gas calculated to 12 per cent of carbon dioxide (CO_2) at standard conditions. In measuring the combustion contaminants from incinerators used to dispose of combustible refuse by burning, the carbon dioxide (CO_2) produced by combustion of any liquid or gaseous fuels shall be excluded from the calculation to 12 per cent of carbon dioxide (CO_2).

REGULATION II. PERMITS

RULE 10. (Amended 12-4-58) PERMITS REQUIRED.

a. Authority to construct. (Amended 12-4-58) Any person building, erecting, altering or replacing on or after February 1, 1948, any article, machine, equipment or other contrivance, the use of which may cause the issuance of air contaminants or the use of which may eliminate or reduce or control the issuance of air contaminants, shall first obtain authorization for such construction from the Air Pollution Control Officer. An authority to construct shall remain in effect until the permit to operate the equipment for which the application was filed is granted or denied or the application is cancelled.

b. Permit to Operate. (Amended 11-16-54). Before any article, machine, equipment or other contrivance described in Rule 10(a) may be operated or used, a written permit shall be obtained from the Air Pollution Control Officer. No permit to operate or use shall be granted either by the Air Pollution Control Officer or the Hearing Board for any article, machine, equipment or contrivance described in Rule 10(a), constructed or installed without authorization as required by Rule 10(a), until the information required is presented to the Air Pollution Control Officer and such article, machine, equipment or contrivance is altered, if necessary, and made to conform to the standards set forth in Rule 20 and elsewhere in these Rules and Regulations.

f. (Effective 1-16-58) Permit to Sell or Rent. Any person who sells or rents to another person an incinerator which may be used to dispose of combustible refuse by burning within the Los Angeles Basin and which incinerator is to be used exclusively in connection with any structure, which structure is designed for and used exclusively as a dwelling for not more than four families, shall first obtain a permit from the Air Pollution Control Officer to sell or rent such incinerator.

RULE 58. INCINERATOR BURNING. A person shall not after September 30, 1957, burn any combustible refuse in any incinerator within the Los Angeles Basin except in a multiple-chamber incinerator as descided in Rule 2(p), or in equipment found by the Air Pollution Control Officer in advance of such use to be equally effective for the purpose of air pollutin control as an approved multiple-chamber incinerator. The Air Pollution Control Board may grant extensions of time for compliance in incorporated cities if:

a. The enforcement of this rule would cause undue hardship in such city, and

b. The burning of combustible refuse in those parts of such city which lie within the Los Angeles Basin is prohibited by valid city ordinance except:

(1) between the hours of 4:00 p.m. and 8:00 p.m. of the same day, or

(2) between the hours of 6:00 a.m. and 10:00 a.m. of the same day in mountain areas carefully defined in such ordinance, in which mountain areas burning at other hours would constitute a hazard to the watershed, and between the hours of 4:00 p.m. and 8:00 p.m. of the same day elsewhere, and

c. The Air Pollution Control Board finds that both (a) and (b) of this section are true, and

d. Such city files with the Air Pollution Control Board a formal resolution of its governing body giving in detail the reasons why the enforcement of this rule after September 30, 1957, in such city would cause an undue hardship, which resolution shall be accompanied by a copy of the ordinance or ordinances, or portions thereof, regulating hours of burning within the city, and

e. In case the ordinance of such city establishes the hours of burning in one or more mountain areas as between 6:00 a.m. and 10:00 a.m. of the same day, such city files a report of its fire department that burning in such mountain areas other than between 6:00 a.m. and 10:00 a.m. would constitute a hazard to the watershed.

RULE 58.1 (Effective 7-1-57) COMMERCIAL AND INDUSTRIAL INCINERATOR BURNING. A person shall not after July 1, 1957, burn any combustible refuse in any incinerator within the Los Angeles Basin except in a multiple chamber incinerator as described in Rule 2p, or in equipment found by the Air Pollution Control Officer in advance of such use to be equally effective for the purpose of air pollution control as an approved multiple chamber incinerator.

The provisions of this rule shall not apply to any incinerator used in connection with any structure designed for and used exclusively as a dwelling for not more than four families.

WASHINGTON, D. C.

SECTION IV.

Article 20. AIR CONTAMINANTS PROHIBITED.

(a) No person shall cause or permit the emission or discharge into the open air for a period or periods aggregating more than three minutes in any one hour from any source whatsoever within the District of Columbia, smoke, the appearance, density or shade of which is:

(1) as dark as or darker than that designated as Shade Number 2 on the Ringelmann Chart, or

(2) of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke of Shade Number 2 on the Ringelmann Chart.

(b) No person shall cause or permit the emission or discharge into the open air from any source whatsoever such quantities of cinders, dust, fly ash, soot, paper ash, or other similar air contaminants to the detriment or annoyance to any person or persons or which affects the comfort, health or safety of any such person or persons.

Article 14. INCINERATORS.

(c) Effective six months after the adoption of this regulation, no incinerator for the burning of any combustible refuse or material shall be installed or constructed in any building, or on any premises unless it is a multiple-chamber incinerator, or combustion equipment determined by the Director, Department of Licenses and Inspections to be equally effective for the purpose of air pollution control.

SAN FRANCISCO, CALIF.

CHAPTER 1 -- GENERAL LIMITATIONS

Paragraph 3110 - VISIBLE EMISSIONS. Except as provided in Paragraphs 3111 through 3114, no person shall cause, let, permit, suffer, or allow the emission for more than three minutes in any one hour of air contaminants which, at the emission point or within a reasonable distance of the emission point, are

Paragraph 3110.1 As dark or darker in shade as that designated as No. 2 on the Ringelmann Chart as published in the United States Bureau of Mines Information Circular 7718, or

Paragraph 3110.2 Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in Paragraph 3110.1; and the determination of such opacity shall be according to procedures in Chapter 6, Division 8.

Paragraph 4111.2 No person shall cause, let, permit, suffer or allow the emission from any incineration operation or salvage operation of particles in sufficient number to cause annoyance to any other person, which particles are sufficiently large as to be visible as individual particles at the emission point or of such size and nature as to be visible individually as incandescent particles. This section 4111.2 shall only apply if such particles fall on real property other than that of the person responsible for the emission.

Paragraph 4112 PARTICULATE MATTER. No person shall cause, let, permit, suffer, or allow any emission from any incineration operation or salvage operation of particulate matter in excess of a concentration of 0.20 grain per standard dry cubic foot of exhaust gas. For the purposes of this Section 4112, the actual measured concentration of particulate matter in the exhaust gas shall be corrected to the concentration which the same quantity of particulate matter would constitute in the exhaust gas, minus water vapor, corrected to standard conditions, containing 6% oxygen by volume and as if no auxiliary fuel had been used. Calculation of this corrected concentration from the actual measured concentration shall be as given in Chapter 1, Division 8. Tests for determining compliance with this section 4112 shall be for not less than 50 minutes in 60 consecutive minutes, or 90% of the time of actual source operation, whichever is less.

Paragraph 4113 HYDROCARBONS AND CARBONYLS. No person shall cause, let permit, suffer, or allow the emission from any incineration operation or salvage operation of an exhaust gas containing a concentration of more than 50 ppm (vol) of total hydrocarbons, or a concentration of more than 50 ppm (vol) of total carbonyls.

CHAPTER 2 - GENERAL REQUIREMENTS

Paragraph 3211. REGISTRATION. Except as excluded by Paragraphs 1210 through 1222, Chapter 2, Division 1, each person responsible for emission of air contaminants, whether or not limits are established by this regulation for emission of such contaminants, shall register with the control officer: (1) his business name, (2) address, (3) name of the responsible managing officer, (4) a description of the business entity and (5) the nature of the business. He shall thereafter provide, on registration forms provided by the control officer, any information regarding such emission as may be required. He shall maintain such registration in current status by notifying the control officer of a significant change in any item of information furnished in compliance with this section. Every person regulated by this regulation may be served with notices, including notices of hearing before the Hearing Board, by certified mail, addressed to the address contained in the registration on file with the control officer. This section of the regulation shall be in full force and effect on September 1, 1960.

Paragraph 3121 No person shall cause, let, permit, suffer, or allow any emission of sulfur dioxide which results in ground level concentrations of sulfur dioxide at any given point in excess of 1.5 ppm (vol) for 3 consecutive minutes or any of the limits specified in Columns 2, 3, 4, and 5 of Table 1. Paragraph 3121 shall not apply to the ground level concentrations occurring on the property from which such emission occurs, provided such property, from the emission point to the point of any such concentration, is controlled by the person responsible for such emission.

Paragraph 3122 Except as provided in Paragraph 3123, no person shall cause, let, permit, suffer, or allow the emission of gas containing sulfur dioxide in excess of 2,000 ppm (vol). All sampling of exhaust gases shall follow the techniques prescribed in Chapter 2, Division 8. For purposes of this section 3122, all sulfur present in gaseous compounds containing oxygen shall be deemed to be present as sulfur dioxide, and analyses of samples taken to determine the amount of sulfur dioxide in exhaust gases shall be made as specified in Chapter 1, Division 9. Tests for determining compliance with this section 3122 shall be for not less than 15 consecutive minutes or 90% of the time of actual source operation, whichever is less.